

MEMS DEVICE FOR AN ADAPTIVE OPTICS MIRROR

ABSTRACT OF THE DISCLOSURE

5 A MEMS device having a movable mirror pixel supported on a substrate and
coupled to a motion actuator located between the mirror pixel and the substrate so as to
enable rotation of the mirror pixel about an axis lying within the mirror plane. In one
embodiment of the invention, the motion actuator has a movable electrode, on which the
mirror pixel is mounted. The movable electrode is supported on the substrate by a pair of
upright springs, each having two parallel segments joined at one end of the spring and
10 disjoint at the other end. One disjoint segment end is coupled to the substrate, while the
other disjoint segment end is coupled to the movable electrode. The end of the upright
spring corresponding to the joined segment ends points away from the substrate such that
(i) the spring body protrudes through a narrow slot in the mirror pixel and (ii) the mirror
plane lies at about the mid-point of the spring. Advantageously, a mirror pixel of the
15 invention enables implementation of a segmented mirror with tightly spaced mirror pixels
providing a fill factor higher than about 98%.